- n is 1 or 2,
- R_1 is selected from hydrogen, C_{1-20} alkyl, polyhaloC_{1-6}alkyl, arylC_{1-6} alkyl and heteroarylC_{1-6} alkyl, and
- R_2 is C_{1-6} alkyl substituted with at least one alcohol group, characterized in additionally having a functional group at one or both ends of the polymer backbone, the said functional end group(s) being other than alcohol.

37. A linear multifunctional poly-α-amino-acid derivative according to claim 36, wherein the said functional end group is selected from the group consisting of amine, carboxyl, ester, carbonate, thiol, thiol precursor, thioisocyanate, thiocarbonate, urea, thiourea, aldehyde, acetal, N-carboxyanhydride, oxycarbonyl, maleimide and any vinyl group suitable for radical, anionic or cationic polymerization.

38. A linear multifunctional poly-α-amino-acid derivative according to claim 36, having a functional group at both ends of the polymer backbone, and additionally having a single functional group as a side group.

39. A linear poly-α-amino-acid derivative according to claim 36, additionally comprising repeating units of one or more comonomer(s) copolymerizable with the α-amino-acid sequence containing glutamic or aspartic or serinic repeating units.

40. A linear poly-α-amino-acid derivative according to claim 36, additionally comprising repeating units of one or more comonomer(s) copolymerizable with the α-amino-acid sequence containing glutamic or aspartic or serinic repeating units, wherein the said co-monomer is selected from the group consisting of any naturally-occurring α-amino-acid other than glutamic acid, aspartic acid and serine and polymer

blocks or sequences derived from ethylene oxide or propylene oxide or polyhydroxyalkanoates.

41. A linear poly-α-amino-acid derivative according to claim 36, being multifunctional and having any of the following formulae:

$$V\text{-}[\ CO - CHR - NH]_x\text{-}\ [A]_y\text{-}\ W \qquad \text{(IIa)}$$

$$V\text{-}[A]_y\text{-}\ [\ CO - CHR - NH]_x\text{-}\ W \qquad \text{(IIb)}$$

$$V\text{-}[\ CO - CHR - NH]_x\text{-}\ [A]_y\text{-}[\ CO - CHR - NH]_{x'}\text{-}\ W \qquad \text{(IIc)}$$

$$V\text{-}[\ CO - CHR - NH]_x\text{-}\ T\ \text{-}[\ CO - CHR - NH]_{x'}\text{-}\ V \qquad \text{(IId)}$$

$$W$$

$$V\text{-}[\ CO - CHR - NH]_x\text{-}\ T\ \text{-}[\ CO - CHR - NH]_{x'}\text{-}\ V' \qquad \text{(IIe)}$$

$$W$$

wherein:

- R is as defined in claim 36,
- x or, where applicable, x + x' range from 2 to 2,000,
- each of V and W independently represent a functional group,
- A is at least a co-monomer copolymerizable with the α-amino-acid sequence containing glutamic or aspartic or serinic repeating units,
- y ranges from 0 to 500,
- T is a spacing unit selected from lysine and ornithine, and
- V' is a non-reactive end group.

42. A linear poly-α-amino-acid derivative according to claim 36, being monofunctional and having any of the following formulae:

$$V\text{-}[\ CO - CHR - NH]_x\text{-}\ [A]_y\text{-}\ W' \qquad \text{(Va)}$$

$$V'\text{-}[\ CO - CHR - NH]_x\text{-}\ [A]_y\text{-}\ W \qquad \text{(Vb)}$$

$$V\text{-}[\ CO - CHR - NH]_x\text{-}\ [A]_y\text{-}[\ CO - CHR - NH]_{x'}\text{-}\ W' \qquad \text{(Vc)}$$

$$V'\text{-}[\ CO - CHR - NH]_x\text{-}\ [A]_y\text{-}[\ CO - CHR - NH]_{x'}\text{-}\ W \qquad \text{(Vd)}$$

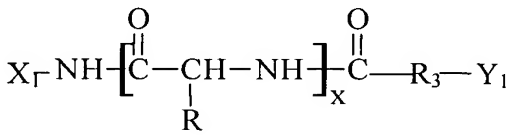
$$V'\text{-}[\ CO - CHR - NH]_x\text{-}\ T\ \text{-}[\ CO - CHR - NH]_{x'}\text{-}\ V' \qquad \text{(VI)}$$

$$W$$

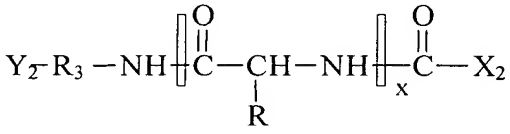
wherein:

- R is as defined in claim 36,
- x or, where applicable, x + x' range from 2 to 2,000, and
- each of V and W independently represent a functional group,
- A is at least a co-monomer copolymerizable with the α-amino-acid sequence containing glutamic or aspartic or serinic repeating units,
- y ranges from 0 to 500,
- T is a spacing unit selected from lysine and ornithine, and
- V' and W' are non-reactive end groups.

43. A linear poly-α-amino-acid derivative according to claim 36, having at least one protective end group and being represented by the following formulae:



(VII), or



(VIII),

wherein:

- R is $-(CH_2)_n-$ CO – NHR_2,
- $R_2$and n are as defined in claim 36,
- x ranges from 2 to 2,000,
- X_1 is $– R_4 – Z_1 – A_1$,
- each of R_3 and R_4 is independently selected from $(CH_2)_m$, arylene, C_{1-6} alkylarylene and arylC_{1-6} alkylene,
- m is from 2 to 20,
- Y_1 is $– Z_2 – A_2$,
- X_2 is $– R_4 – Z_3 – A_3$ or $- O – R_4 – Z_3 – A_3$,
- Y_2 is $– Z_4 – A_4$,
- each of Z_1, Z_2, Z_3 and Z_4 is independently selected from NH, O, S, C(O)O, C(S)O, CO, CS, -OCH-O- and $C = N – R_5$,
- each of A_1, A_2, A_3 and A_4 is a protective group suitable for Z_1, Z_2, Z_3

and Z_4 respectively, and

- R_5 is selected from hydrogen, C_{1-6} alkyl, aryl and C_{1-6} alkylaryl, heteroaryl and C_{1-6} alkylheteroaryl.

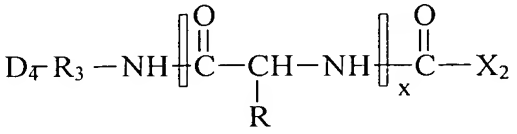
44. A linear poly-α-amino-acid derivative according to claim 36, being represented by the formula:

$$X_1\text{-NH-[CO – CHR – NH]}_x\text{- CO – CHR – NH}_2 \qquad \text{(IX)}$$

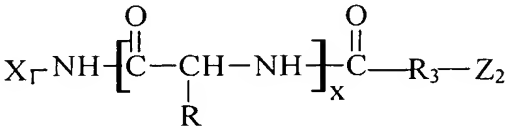
wherein:

- X_1 is $– R_4 – Z_1 – A_1$,
- R_4 is selected from $(CH_2)_m$, arylene, C_{1-6} alkylarylene and arylC_{1-6} alkylene,
- x ranges from 2 to 2,000,
- R is defined as $–(CH_2)_n\text{- CO – OR}_1$,
- R_1 and n are as defined in claim 36,
- Z_1 is selected from NH, O, S, C(O)O, C(S)O, CO, CS, -OCH-O- and $C = N – R_5$,
- A_1 is a protective group suitable for Z_1, and
- R_5 is selected from hydrogen, C_{1-6} alkyl, aryl and C_{1-6} alkylaryl, heteroaryl and C_{1-6} alkylheteroaryl.

45. A linear poly-α-amino-acid derivative according to claim 36, being represented by any of the respective formulae:



(X), and



(XI), wherein:

- R is $-(CH_2)_n-$ CO – NHR_2,
- R_2 and n are as defined in claim 36,
- x ranges from 2 to 2,000;
- X_1 is – R_4 – Z_1 – D_1,
- each of R_3 and R_4 is independently selected from $(CH_2)_m$, arylene, C_{1-6} alkylarylene and arylC_{1-6} alkylene,
- m is from 2 to 20,
- each of $R_3 – Y_1$ and $R_3 – Y_2$ may be a group including a vinyl terminal moiety,
- X_2 is – R_4 – Z_3 – D_3,
- each of Z_1, Z_2, Z_3 and Z_4 is independently selected from NH, O, S, C(O)O, C(S)O, CO, CS, -OCH-O- and C = N – R_5,
- each of D_1, D_2, D_3 and D_4 is independently selected from hydrogen, aryl, heteroaryl, succinimidyl, vinyl, C_{1-6} alkylcarbonyl,
- each of $Z_1 – D_1$, $Z_2 – D_2$, $Z_3 – D_3$ and $Z_4 – D_4$ may be independently selected from maleimidyl, disulfide, α-haloacetoxy and C_{1-6} alkyloxy-methylsulfide, and
- R_5 is selected from hydrogen, C_{1-6} alkyl, aryl and C_{1-6} alkylaryl, heteroaryl and C_{1-6} alkylheteroaryl.

46. A process for making a linear monofunctional or multifunctional poly-α-amino-acid derivative having at least glutamic or aspartic or serinic repeating units in the polymer backbone and additionally having a functional group at one or both ends of the polymer backbone, the said functional end group(s) being other than alcohol, including a step comprising polymerizing a monomer or mixture of monomers comprising at least the N-carboxy anhydride of an amino-acid selected from glutamic acid, aspartic acid, serine and oxygen-protected serine in the presence of an effective amount of a multifunctional initiator containing at least one primary amino group and further containing at least another functional group selected from maleimide, thioisocyanate,

thiocarbonate, urea, thiourea, aldehyde, acetal, oxycarbonyl, vinyl, ester, carbonate, thiol precursor, protected amine and protected carboxylic acid and/or in the presence of an effective amount of a bi-functional terminating reagent.

47. A process according to claim 46, further including aminolysis of the pending group of the glutamic, aspartic or serinic repeating unit derived from glutamic acid, aspartic acid or serine by means of an effective amount of an amino-alcohol, in the presence of an effective amount of a reaction promoter.

48. A process for making a linear monofunctional or multifunctional poly-α-amino-acid derivative having at least glutamic or aspartic or serinic repeating units in the polymer backbone and additionally having a functional group at one or both ends of the polymer backbone, the said functional end group(s) being other than alcohol, including:

- a first step of N-acylating part of an α-amino-acid selected from glutamic acid, aspartic acid and serine, then separately treating the N
-acylated α-amino-acid and the remaining part of the said α-amino
-acid in order to form a mixture of the corresponding N-carboxy anhydrides, and
- a second step of copolymerizing the said mixture of N-carboxy anhydrides in the presence of an initiator.

49. A process according to claim 48, wherein the N-carboxy anhydride terminated polymer obtained in the second step is reacted with a reagent having the formula $H_2N - R_3 - Y_2$, wherein:

- R_3 is selected from $(CH_2)_m$, arylene, C_{1-6} alkylarylene and arylC_{1-6} alkylene,

- Y_2 is $-Z_4-A_4$,
- Z_4 is selected from NH, O, S, C(O)O, C(S)O, CO, CS, -OCH-O- and $C=N-R_5$,
- A_4 is a protective group suitable for Z_4, and

- R_5 is selected from hydrogen, C_{1-6} alkyl, aryl and C_{1-6} alkylaryl, heteroaryl and C_{1-6} alkylheteroaryl.

50. A biodegradable article containing a copolymer comprising at least a moiety derived from a linear monofunctional or multifunctional poly-α-amino-acid derivative having at least glutamic or aspartic or serinic repeating units in the polymer backbone and additionally having a functional group at one or both ends of the polymer backbone, the said functional end group(s) being other than alcohol, provided that the said functional end group(s) is an unsaturated group.

51. A poly-α-amino-acid derivative according to claim 36, containing a L -amino-acid sequence and being enzymatically degradable.

52. A poly-α-amino-acid derivative according to claim 36, containing a D-amino-acid sequence, being non-degradable, for the surface modification of a biomaterial.

53. The product of coupling a biomolecule with a linear monofunctional or multifunctional poly-α-amino-acid derivative having at least glutamic or aspartic or serinic repeating units in the polymer backbone and additionally having a functional group at one or both ends of the polymer backbone, the said functional end group(s) being other than alcohol.

54. The product of claim 53, wherein the said biomolecule is selected from the group consisting of therapeutic agents, prophylactic agents,